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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Jeffrey Thomas REID )  
SERIAL NO: 10/068,128 ) Group Art Unit: 1764  
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TITLE: SOLAR STILL

THE COMMISSIONER FOR PATENTS  
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AMENDED CLAIMS

1. (currently amended) A solar still comprising:  
a hollow horizontally extending porous absorber body,  
~~a substantially horizontally extending porous absorber body,~~  
a body positioner to expose the said porous absorber body to solar radiation,  
a feeder to introduce feed liquid into the said porous absorber body,  
a condenser, of non-porous material that is substantially transparent to solar radiation, substantially enveloping the said porous absorber body, the said condenser being inclined slightly ~~horizontally~~ inclined downwardly,  
a flow controller to regulate the rate of flow of feed liquid into the said porous absorber body, said rate of flow regulated to achieve an operating temperature of said feed liquid in said porous absorber body,  
and  
a harvester for the removal of distillate from the said condenser;  
~~wherein said still operates at a temperature of greater than 80° Celsius~~ wherein said porous absorber body extends between two ends,

the first end being open to receive said feed liquid and the second end being closed to prevent flow of said feed liquid therefrom.

2. (currently amended) A solar still according to claim 1 wherein the said porous absorber body comprises at least one rigid, porous tube of darkly colored, sintered ceramic material, ~~having two ends, and~~ ~~said porous tube is open at one end to receive feed liquid and is closed at its other end to prevent flow of feed liquid therefrom.~~

3. (currently amended) A solar still according to claim 2 wherein said condenser ~~means~~ comprises at least one non-porous tube through which ~~the said porous~~ absorber body extends without making contact therewith, and wherein ~~the~~ said at least one non-porous tube is of a material that is substantially transparent to solar radiation.

4. (currently amended) A solar still according to claim 3 wherein ~~the~~ said porous absorber body comprises a plurality of said porous tubes and a like plurality of said non-porous tubes respectively associated with ~~the~~ said porous tubes in a substantially planar array wherein ~~the~~ said porous tubes are parallel and spaced apart.

5. (currently amended) A solar still according to claim 4 wherein ~~the absorber body comprises~~ said body positioner ensures that ~~the~~ said planar array is inclined to the horizontal at an angle of inclination to suit the geographic location of ~~the~~ said solar still so as to maximize exposure of the said planar tube array to solar radiation.

6. (currently amended) A solar still according to claim 5 wherein said feeder comprises a feed pipe extending from a source of feed liquid to a header to which each of said at least one porous tubes are connected, and wherein said flow controller comprises a valve in said feed pipe upstream of said header.

7. (currently amended) A solar still according to claim 5 wherein said harvester comprises an outlet spout adjacent a lower end of each of of said

at least one non-porous ~~pipe~~ tubes and a collector gutter to receive distillate from ~~these spouts~~ said outlet spout.

8. (currently amended) A passive solar still according to claim 6 wherein said flow controller further comprises a thermometric element in thermal transmission relationship with said feed liquid in one of said at least one porous tubes and an electronic control unit responsive to signals from said thermometric element that operates said valve to achieve an said operating temperature, and wherein said operating temperature is close to, but no greater than 100 °C.

9. (currently amended) ~~An~~ A solar still according to claim 3 further comprising ~~at least one reflector~~ a reflect means to concentrate solar radiation onto said at least one porous tube and a ~~tracker~~ track means to cause said ~~reflector~~ reflect means to track the sun.

10. (currently amended) ~~An~~ A solar still according to claim 9 wherein said ~~at least one reflector~~ reflect means includes a parabolic trough reflector having a focal line and a parabolic axis, and wherein said body positioner ensures that the said at least one porous tube is substantially coaxial with said focal line,

and wherein said tracking means ~~ensure~~ ensures that said parabolic axis remains substantially directed towards the sun when the said solar still is producing said distillate.

11. (currently amended) ~~An~~ A solar still according to claim 10 wherein said body ~~positioner~~ comprise comprises a stationary base, a turntable supported by said stationary base for rotation about a substantially vertical axis and two spaced apart pillars extending upwardly from said turntable,

and wherein said at least one porous tube and said at least one non-porous tube extend between said pillars and are fixedly supported thereby,

and wherein said parabolic trough reflector extends between said pillars and is rotatably supported thereby,

and wherein the axis of rotation of the said turntable intersects the axis of said at least one porous tube and said focal line.

12. (currently amended) ~~An~~ A solar still according to claim 11 wherein said tracker tracking means comprises a first motor drive connected to said parabolic trough reflector to effect rotation thereof about its focal line, a second motor drive connected to said turn-table turntable to effect rotation thereof about its axis of rotation, and an electronic control unit responsive to signals from an array of photo-detectors that moves as one with the said parabolic trough reflector,

and wherein the each of said photo-detectors have has a respective discrete fields field of view of the sky.

13. (currently amended) ~~An~~ A solar still according to claim 12 wherein the said array of photo-detectors is symmetrical about a central axis of the ~~array~~ that is parallel to the said parabolic axis of the said parabolic trough reflector,

and wherein all of the ~~detectors~~ said photo-detectors are lit by the sun when, and only when, the said parabolic axis is directed at the sun.

14. (currently amended) ~~An~~ A solar still according to claim 13 wherein all of the ~~detectors~~ said photo-detectors are unlit the said electronic control unit de-energizes both said motors to halt the said parabolic reflector until such time as at least one ~~detector~~ photo-detector is re-lit.

15. (currently amended) ~~An~~ A solar still according to claim 13 wherein all of the ~~detectors~~ said photo-detectors are unlit the said electronic control unit operates said motors so as to park the said parabolic trough reflector in a pre-determined position, and then de-energizes both said motors until such time as at least one ~~detector~~ photo-detector is re-lit.

16. (currently amended) ~~An~~ A solar still according to claim 3 wherein said feeder comprises a feed pipe extending from a source of feed liquid to ~~the~~ said open end of said at least one porous tube,

and wherein said flow controller comprises a valve in said feed pipe upstream of said open end.

17. (currently amended) ~~An~~ A solar still according to claim 16 wherein said flow controller further comprises a thermometric element in thermal transmission relationship with said feed liquid in said at least one porous tube and an electronic control unit responsive to signals from said thermometric element ~~that operates to operate~~ said valve to achieve a ~~maximum~~ said operating temperature and wherein said operating temperature is close to, but no greater than 100 °C.

18. (currently amended) ~~An~~ A solar still according to claim 3 further comprising a catchment gutter extending within and lengthwise of ~~the~~ said at least one non-porous tube underneath ~~the~~ said at least one porous tube and discharging to waste, said catchment gutter being adapted to catch any un-evaporated feed water dripping from ~~the~~ said at least one porous tube wall, including feed water fed into ~~the~~ said at least one porous tube during the night for flushing purposes

19. (withdrawn) A method of distilling a feed liquid to produce a desired distillate using a still according to claim 1 said method comprising the steps of maintaining a flow of feed liquid into a porous, hollow absorber body, exposing the absorber body to solar radiation, and condensing resultant vapor arising from the absorber body.

20. (withdrawn) A method according to claim 19 wherein said feed liquid is contaminated water and said distillate is potable water.